U.S. COAST GUARD
83
USCGC MACKINAW

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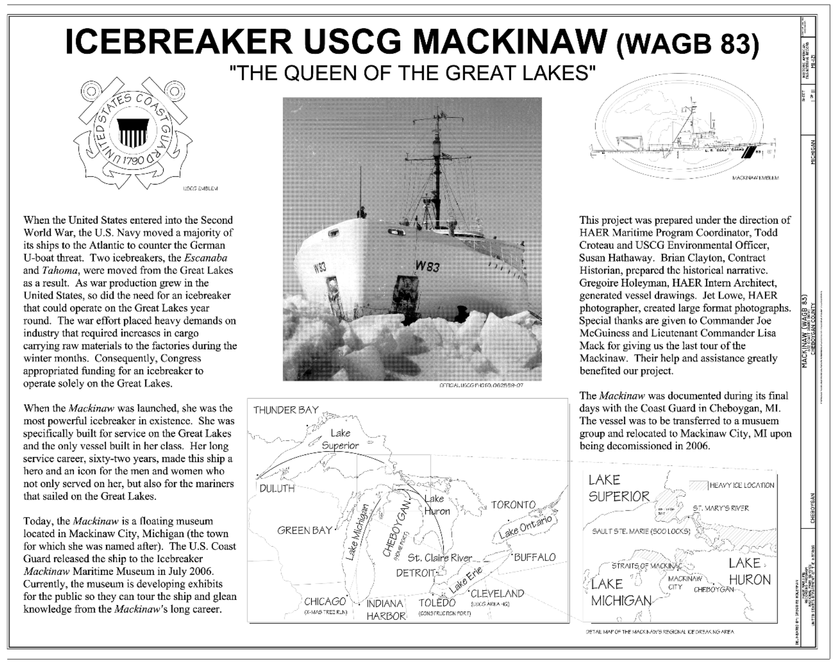
00 - cover photo



ICEBREAKER USCG MACKINAW (WAGB 83)

"THE QUEEN OF THE GREAT LAKES"

USCG EMBLEM

When the United States entered into the Second World War, the U.S. Navy moved a majority of its ships to the Atlantic to counter the German U-boat threat. Two icebreakers, the *Escanaba* and *Tahoma*, were moved from the Great Lakes as a result. As war production grew in the United States, so did the need for an icebreaker that could operate on the Great Lakes year round. The war effort placed heavy demands on industry that required increases in cargo carrying raw materials to the factories during the winter months. Consequently, Congress appropriated funding for an icebreaker to operate solely on the Great Lakes.

When the *Mackinaw* was launched, she was the most powerful icebreaker in existence. She was specifically built for service on the Great Lakes and the only vessel built in her class. Her long service career, sixty-two years, made this ship a hero and an icon for the men and women who not only served on her, but also for the mariners that sailed on the Great Lakes.

Today, the *Mackinaw* is a floating museum located in Mackinaw City, Michigan (the town for which she was named after). The U.S. Coast Guard released the ship to the Icebreaker *Mackinaw* Maritime Museum in July 2006. Currently, the museum is developing exhibits for the public so they can tour the ship and glean knowledge from the *Mackinaw*'s long career.

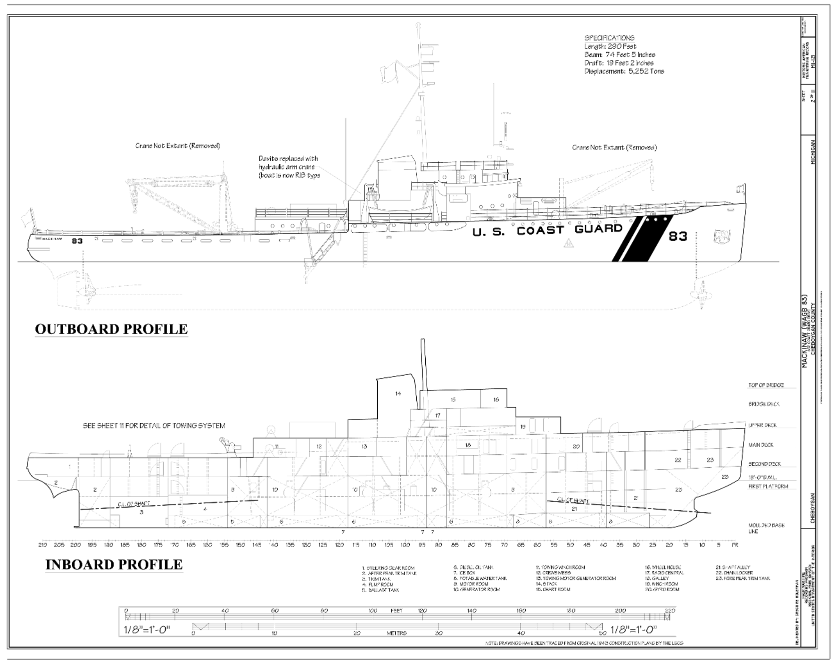
MACKINAW EMBLEM

This project was prepared under the direction of HAER Maritime Program Coordinator, Todd Croteau and USCG Environmental Officer, Susan Hathaway. Brian Clayton, Contract Historian, prepared the historical narrative. Gregoire Holeyman, HAER Intern Architect, generated vessel drawings. Jet Lowe, HAER photographer, created large format photographs. Special thanks are given to Commander Joe McGuiness and Lieutenant Commander Lisa Mack for giving us the last tour of the Mackinaw. Their help and assistance greatly benefited our project.

The *Mackinaw* was documented during its final days with the Coast Guard in Cheboygan, MI. The vessel was to be transferred to a musuem group and relocated to Mackinaw City, MI upon being decomissioned in 2006.

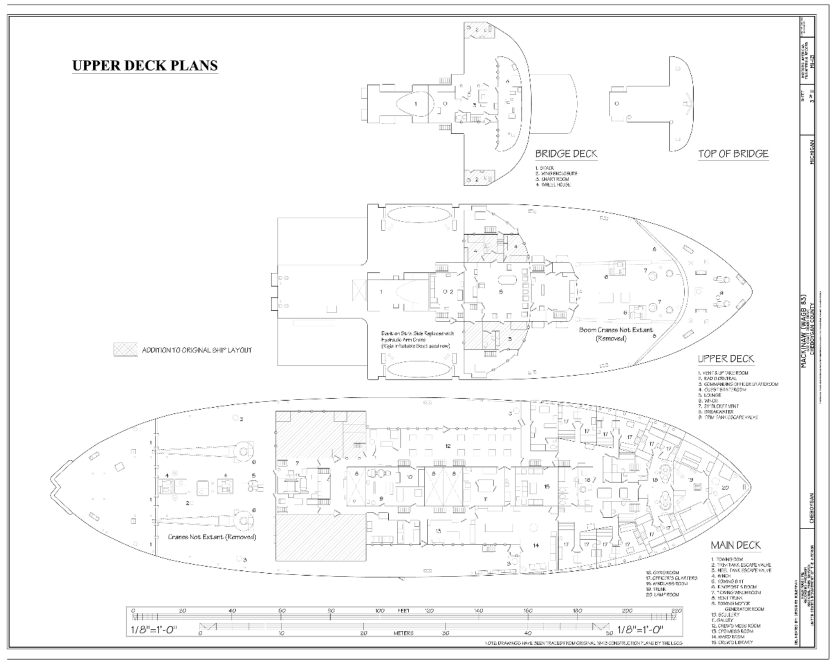
W83
THUNDER BAY
Lake Superior
DULUTH
GREEN BAY
Lake Michigan
Lake Huron
TORONTO
Lake Ontario
BUFFALO
St. Claire River
DETROIT
Lake Erie
CLEVELAND
TOLEDO
CHICAGO
INDIANA HARBOR
LAKE SUPERIOR
HEAVY ICE LOCATION
ST. MARY'S RIVER
SAULT STE. MARIE (SOO LOCKS)
STRAITS OF MACKINAC
LAKE HURON
LAKE MICHIGAN
MACKINAW CITY
CHEBOYGAN
MACKINAW (WAGB 83)
CHEBOYGAN COUNTY
CHEBOYGAN
MICHIGAN

01 - title sheet



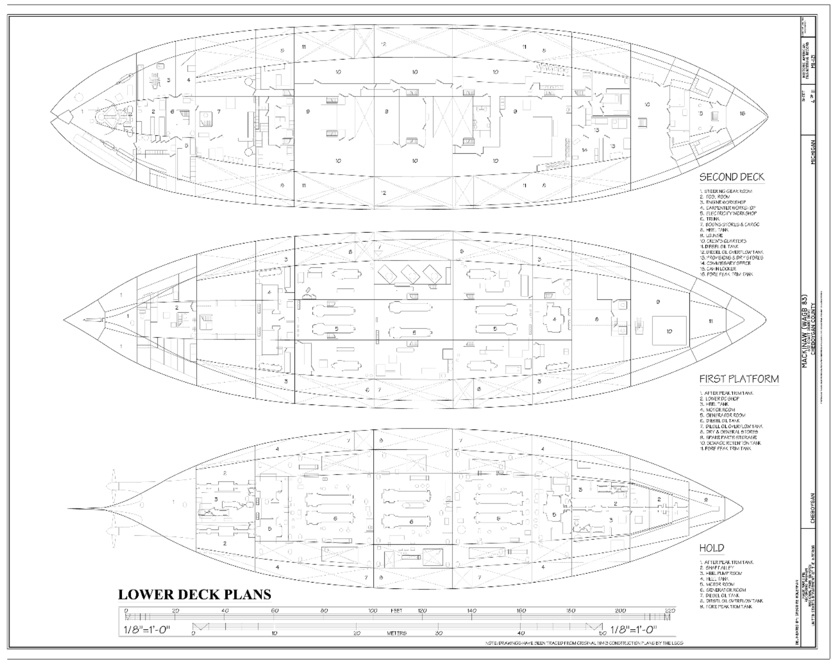
U. S. COAST GUARD
83
OUTBOARD PROFILE
INBOARD PROFILE
1/8"=1'-0"

02 - inboard & outboard profile



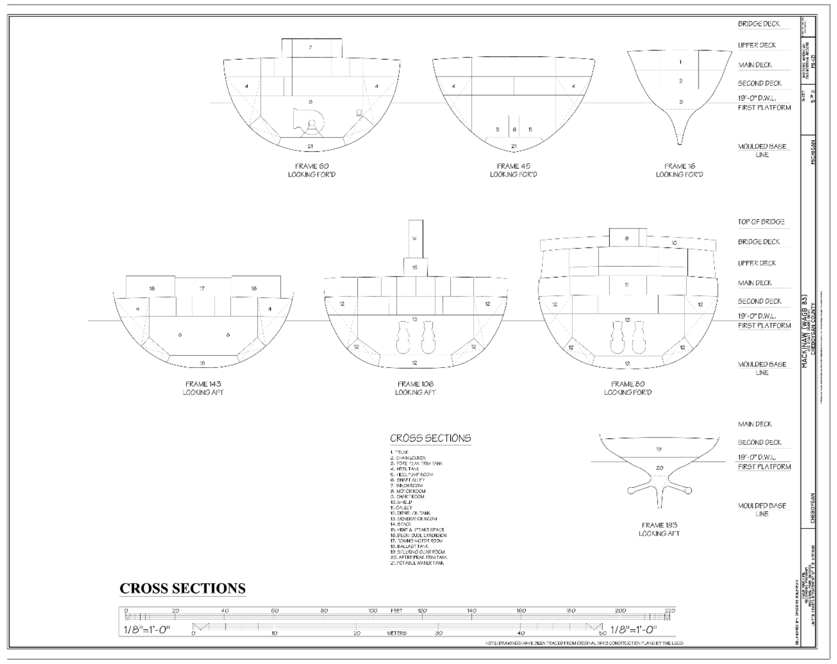
UPPER DECK PLANS
BRIDGE DECK
TOP OF BRIDGE
UPPER DECK
MAIN DECK
1/8"=1'-0"

03 - upper deck plans



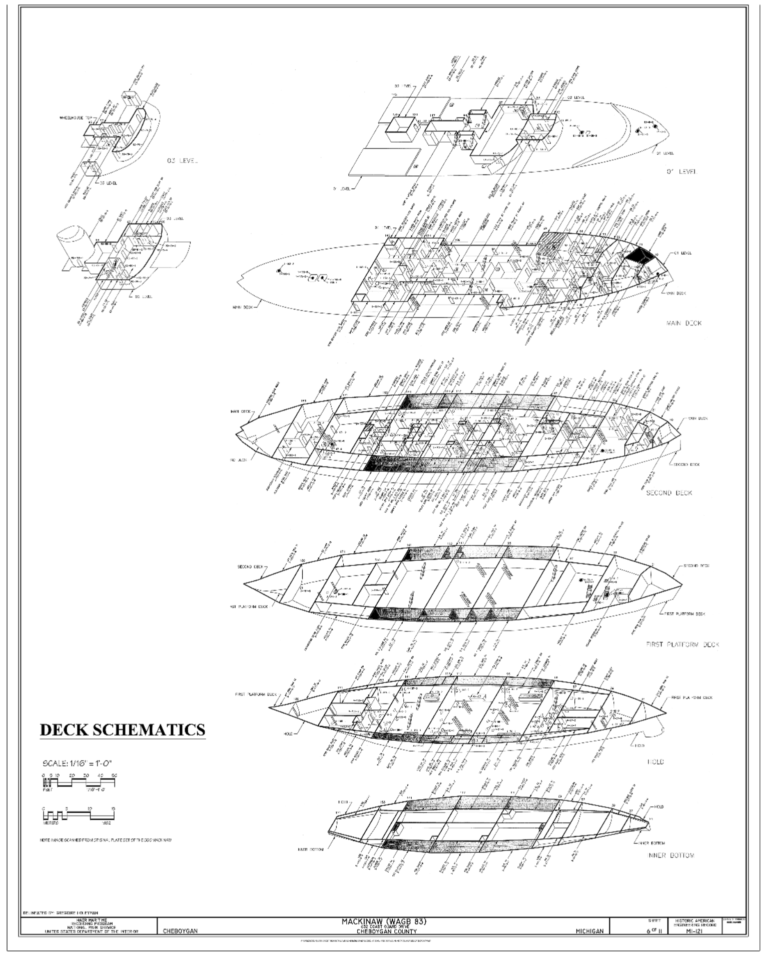
SECOND DECK
FIRST PLATFORM
HOLD
LOWER DECK PLANS
1/8"=1'-0"

04 - lower deck plans

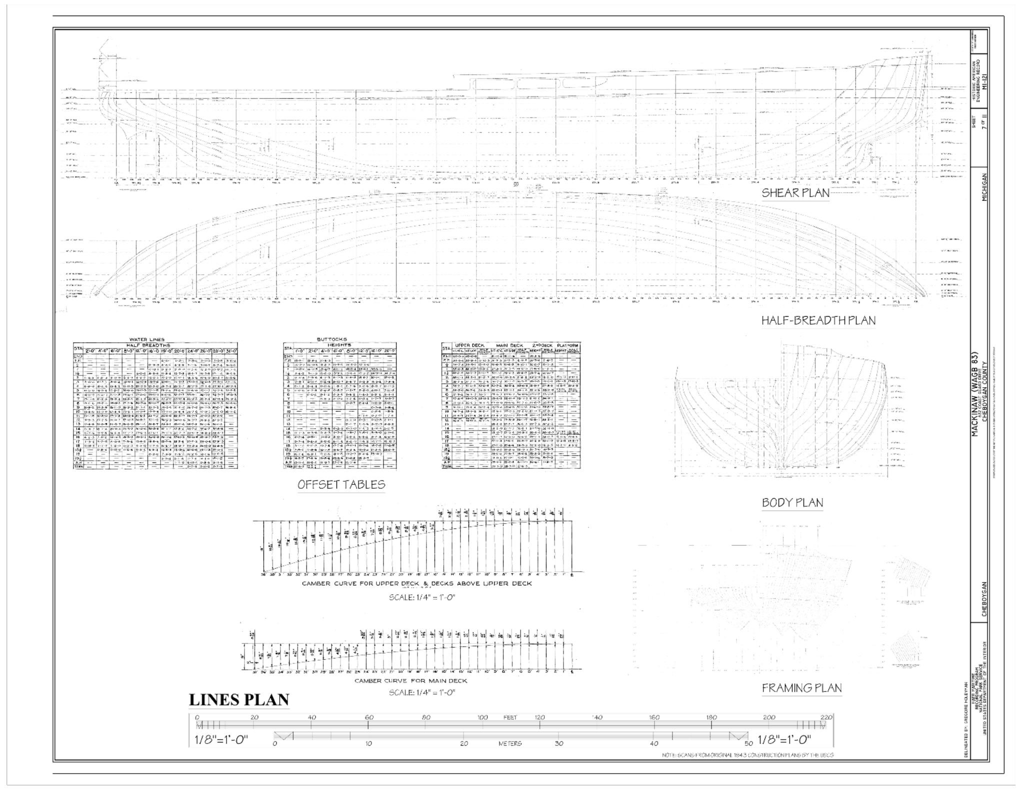


CROSS SECTIONS
1/8"=1'-0"

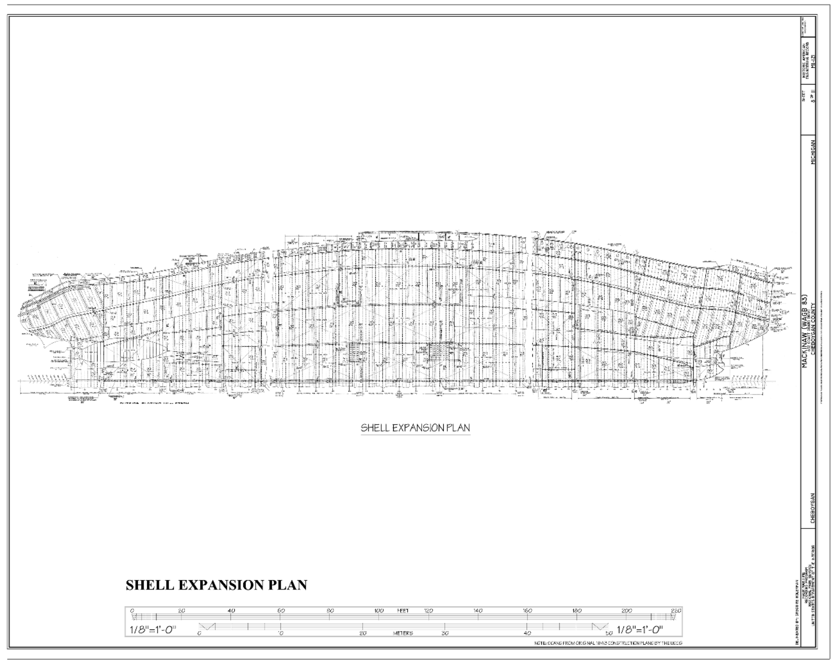
05 - cross sections


DECK SCHEMATICS
MACKINAW (WAGB 83)

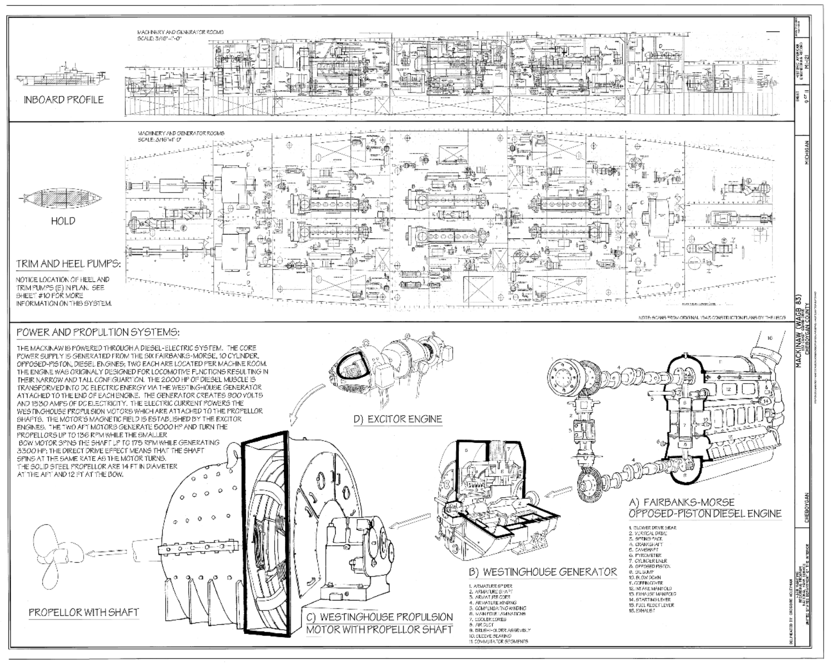
06 - deck schematics


SHEAR PLAN
HALF-BREADTH PLAN
OFFSET TABLES
BODY PLAN
FRAMING PLAN
LINES PLAN

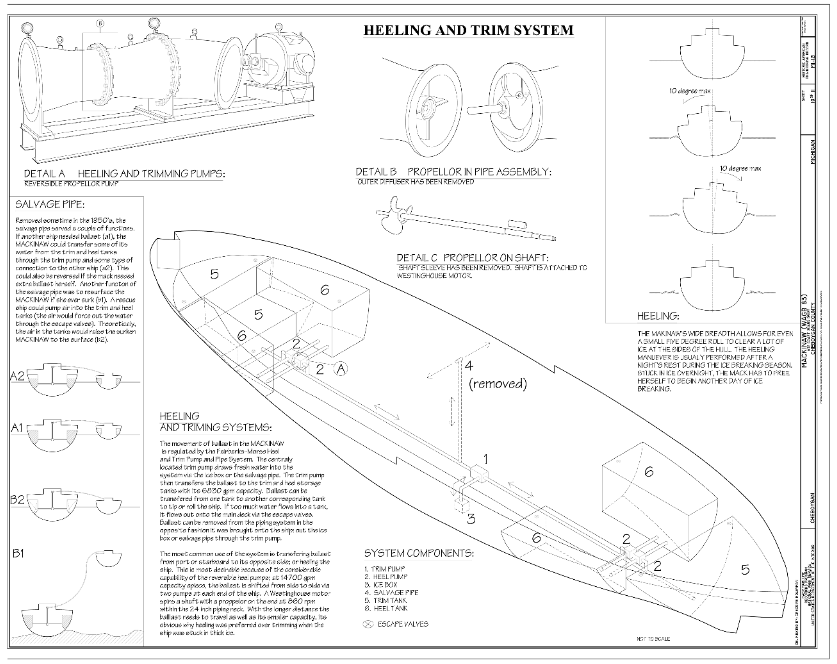
07 - body, lines & sheer plan


SHELL EXPANSION PLAN

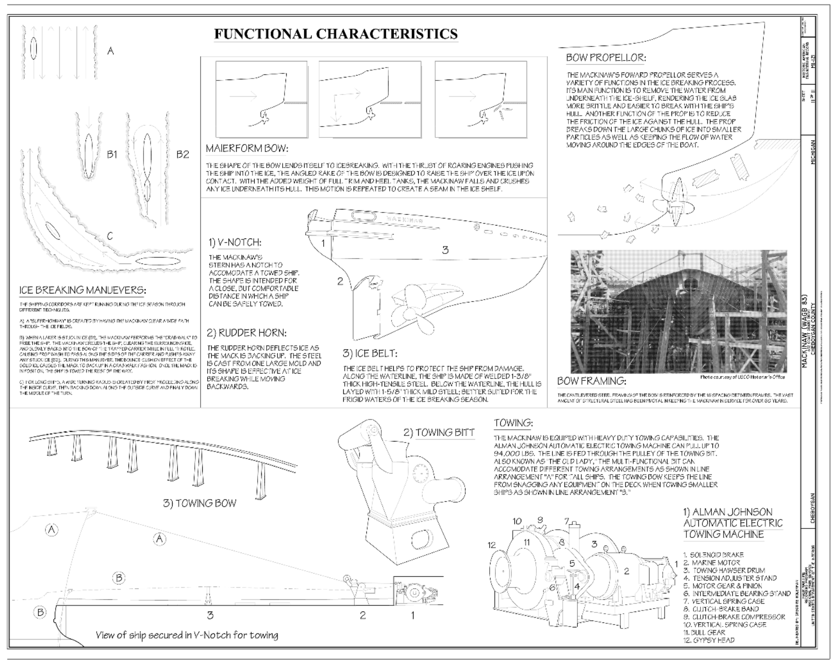
08 - shell expansion


INBOARD PROFILE
HOLD
TRIM AND HEEL PUMPS:
POWER AND PROPULSION SYSTEMS:
D) EXCITOR ENGINE
A) FAIRBANKS-MORSE OPPOSED-PISTON DIESEL ENGINE
B) WESTINGHOUSE GENERATOR
C) WESTINGHOUSE PROPULSION MOTOR WITH PROPELLOR SHAFT
PROPELLOR WITH SHAFT

09 - power & propulsion systems


HEELING AND TRIM SYSTEM
DETAIL A HEELING AND TRIMMING PUMPS:
DETAIL B PROPELLOR IN PIPE ASSEMBLY:
DETAIL C PROPELLOR ON SHAFT:
SALVAGE PIPE:
HEELING AND TRIMING SYSTEMS:
SYSTEM COMPONENTS:
HEELING:

10 - heeling & trim system


FUNCTIONAL CHARACTERISTICS
BOW PROPELLOR:
MAIERFORM BOW:
1) V-NOTCH:
2) RUDDER HORN:
3) ICE BELT:
ICE BREAKING MANEUVERS:
BOW FRAMING:
TOWING:
2) TOWING BITT
3) TOWING BOW
1) ALMAN JOHNSON AUTOMATIC ELECTRIC TOWING MACHINE

11 - functional characteristics